A Study on Open Space Design in Terms of the Relation between Parks and Their Bordering Facilities in Urban Areas

Shimomura, Yasuhiko* · Kotake, Oshie* · Kaga, Hiroyuki* · Masuda, Noboru*

*Graduate School of Agriculture and Biological Sciences, Osaka Prefecture University

Abstract

This study aimed at providing suggestions in designing open space so that parks and bordering facilities are well related to each other in terms of the visual access and human activities. The design survey was conducted in the center of Osaka City, using parks there as the study material. The relation between parks and their bordering facilities was evaluated in terms of the visual access and human activities.

Through the results of this study, as the design methods for improving relations between parks and their bordering facilities, unified design and creation of square in the boundary area between them, placing access paths to facilities in parks, and planting trees to create Vista, Screen, and Framework landscapes are of great importance.

Key Words : Open Space Design, Park, Bordering Facilities, Visual Access, Human Activities

I. INTRODUCTION

In cities, the urban area has been redeveloping, and buildings have been renewed. Facilities facing parks, such as cafes, have integrated the green landscape of the park into their design, and made full use of the square of parks. Some renovation work has begun to improve the boundary area between parks and bordering facilities with unified design, though integrated design of parks and their bordering facilities should be increasingly adopted to contribute to the revitalization of the urban area.

Some studies have been carried out on integration design of open space and bordering facilities in urban areas. For example, one study concerned the relation between the restaurant and its facing road from the viewpoint of open-styled restaurant[1], and another study has found that the open cafe was well designed in relation to its bordering park in Tokyo[2]. However, there are few studies on evaluation of relation between parks in the urban area and bordering facilities, as well as space design of parks in the urban area based on the relation.

In this study, the current interaction of parks, located in the urban area of Osaka City, in relation to their existing bordering facilities was examined, using a design survey, and then the relation between the interaction and space design was evaluated from the viewpoints of the visual access and human activities. This case study would provide the foundation for integrating design of open space in parks and its bordering facilities.

II. STUDY METHODS

In the preliminary field survey, 42 locations in 27 parks where interrelationship with the bordering facilities were chosen as the survey spots among 119 parks located in 5 wards of Osaka City. These wards were Miyakojima-ku Ward, Kita-ku Ward, Fukushima-ku Ward, Chuo-ku, and Nishi-ku Ward. The bordering facilities were defined as the neighbor site or the building whether there is a road or not at the boundary with the park. Before the relation between parks and their bordering facilities was evaluated in terms of the visual access, the objects observers looked over were identified as existence with core scenery as the viewed object and where the site observers stood were determined as an appropriate place as the viewpoint place to recognize the a viewed object in both the parks and facilities. The landscape sceneries created when observers looked over the object, standing on the site was defined as Landscape zone. The landscape sceneries were classified into 9 types (Fig. 1): Vista, Over Head Plain, Framework, Landmark, Foreground, Screen (High-density, Intermediate-density, Low- density), and Double Screen for visual relation between the objects and sites. The arrow in figure 2 shows one's eyes from the viewpoint place to the view object. As to the relation in terms of human activities, the field survey was carried out to identify human activities related to parks and facilities. Then, the activities are shown by the circle mark in figure 2. To examine the continuous human activities, the activities obtained were classified into 12 groups: eating and drinking, waiting, resting, advertising, recreation, gardening, landscaping, exercise, pastime, education, business activities, and traveling. In addition, the landscape sceneries and locations of human activities were plotted on the floor plan so that forms of the space and design elements were well evaluated. All data was plotted on the floor and elevation plans in order to determine the relation between space design and interaction between parks and their bordering facilities in terms of the visual access and human activities. In addition, this study treated the park and the bordering facilities that had some of interrelationship in terms of the visual access and human activities.

III. ANALYTICAL RESULTS AND CONSIDERATIONS

1. Relation Between Parks and Their Bordering Facilities in Terms of the Visual Access and Human Activities

When relations between parks and their bordering facilities in 42 survey locations were evaluated with the viewpoints of the visual access and human activities, the relations were divided into three groups: Mutually-related Group, where the park and its

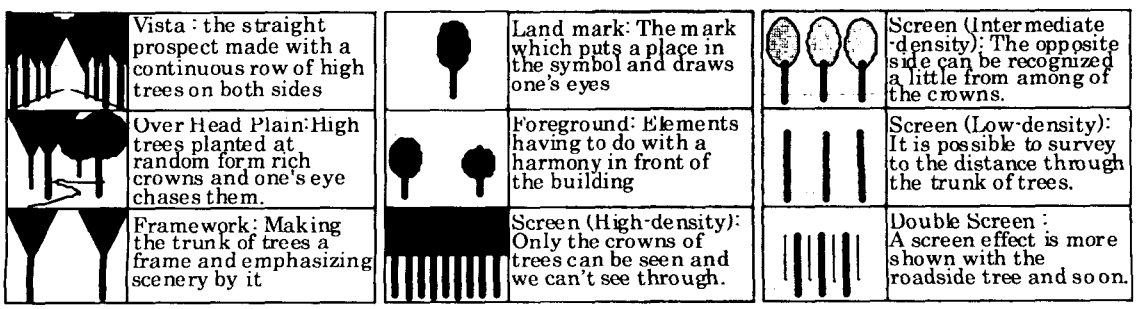

Fig. 1. The classification criteria of visual relation

bordering facilities were related to each other; Park Group, where the park was related to the facilities; and Facilities Group, where facilities were related to the park (Fig. 2).

1) Mutually-related Group

This group consisted of 16 locations of 4 types. Out of them, 9 locations, including Kamifukusima Kita Park and the Symphony Hall, had mutual relations in terms of the visual access and human activities. 3 locations had mutual relations only in terms of the visual access, and had human activities only in terms of facilities. This group, consisting mostly of cafes bordering Kozu Park and Utsubo Park, belonged to Screen Type. One location, Mitsu Park and commercial building, had mutual relations in terms of human activities, such as waiting, and had a relation of the park to the facilities in terms of the visual access. 3 locations, including Shinmati Kita Park and Kosei Nennkinn Hall, had mutual relations in terms of human activities, and only facilities were related to the park, and classified as Landmark type.

2) Park Group

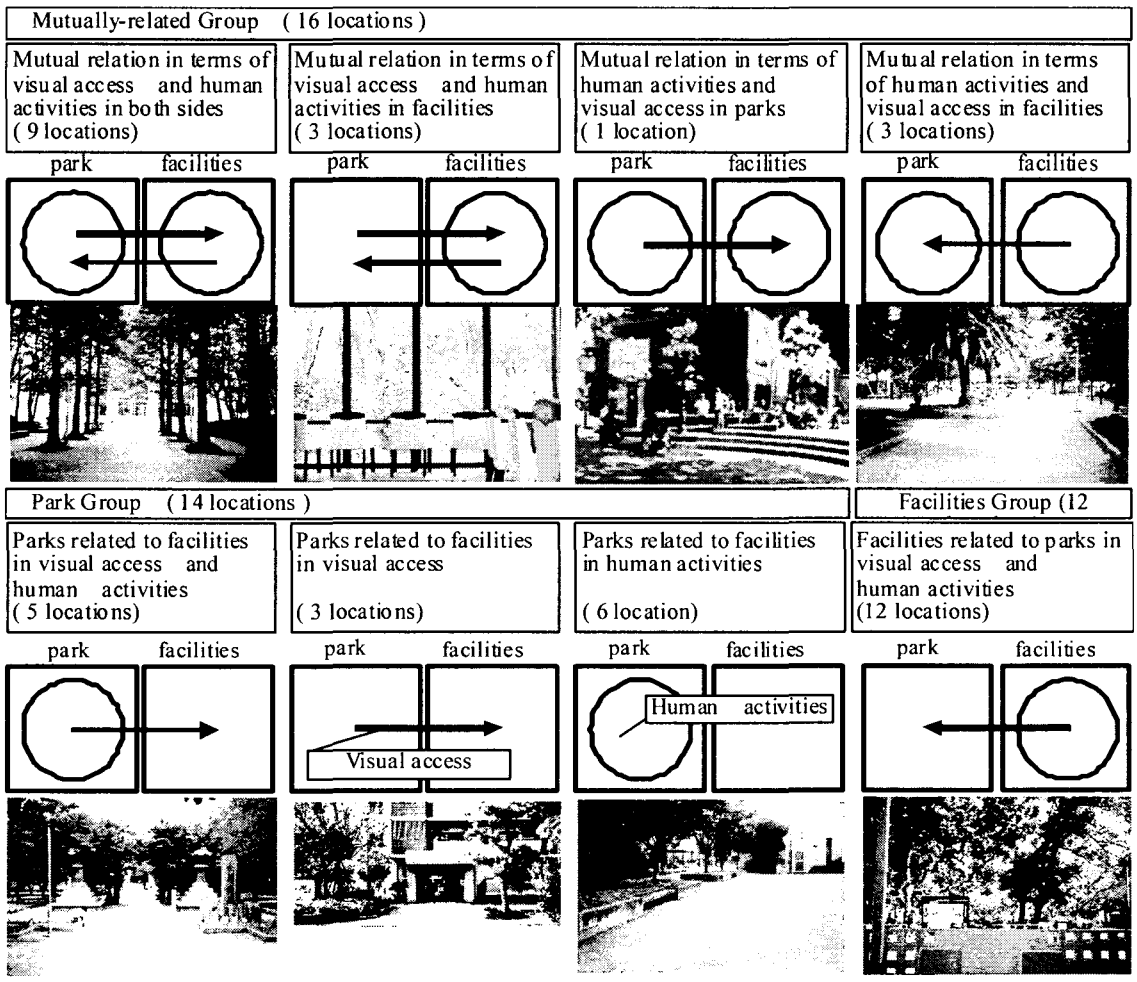

Fig. 2. Relation between parks and their bordering facilities in terms of the visual access and human activities

This group had 14 locations of 3 types. In 5 locations, parks were related to bordering facilities in terms of the visual access and human activities. For example, Tosabori Park and the shrine created Vista and offered business activities in the park. In 3 locations, such as Osaka Dome Kita Park and Osaka Dome, the parks were related to them only in terms of visual access, and classified into Foreground Type. In 6 locations, parks were related to bordering facilities in terms of human activities, such as exercise. The relation between Nakatsu Chuo Park and Sports Center was classified to this group.

3) Facilities Group

This group had 12 locations of 1 type. In all locations, facilities were related to their facing park in terms of the visual access and human activities. For example, people enjoyed their lunch and dinner in the facilities while watching the trees in the park. The relation between Higashinoda Park and a cafe, and Sagisugami Park and an apartment house belonged to this group.

These results indicated that facilities tended to make full use of green landscape and squares in parks. In only 9 locations, mutual relation was found in terms of both the visual access and human activities. The facilities more open to the public tended to have this relation.

2. Relation between Space Design and the Results Obtained Above

1) Mutually-related Group There were two kinds of design methods used in this group. In one design technique, the entrance of facilities was designed so that it was able to face the park. In the other design technique, the back or side of facilities was designed to face the park. The good example of the former type was Kamifukushima Kita Park and the Symphony Hall (Fig. 3). This case was exemplified to explain the relation. Both Vista and Screen (High-density) were seen and ad campaigning, traveling, waiting, and resting were found among the human activities. As for the visual access, Vista was created when observers looked over the entrance of Symphony Hall, standing in the square of the park, while Screen scenery was created when observers looked over the trees in the park, standing at the entrance lobby of the hall. As for the human activities, visitors of the hall relaxed in the entrance square of the park. Along the axis of Vista, some visitors traveled from the entrance square to the entrance lobby, and others waited for their friends or the opening of concerts along the garden path or in front of the hall. On the other hand, in the entrance lobby, visitors waited for their friends and the opening of concerts or relaxed, watching trees in the park. These observations showed that the successful design technique in creating better relations between parks and their bordering facilities were the linear open space, created using two lines of Himalayan cedars along Vista axis, and an alcove-shaped square, made by the series planting of trees in boundary area between the hall and park. A full-scale glass window was used at the facade of the hall in order that visitors can enjoy the green landscape scenery through the window.

The other technique, in which the back or side faces the park, adopted two kinds of designs. As a good example, the relation between Higashinoda Park and the kindergarten was introduced (Fig. 4). In this relation, Framework and Screen were seen, and playing, traveling, and resting were found among the human activities. Framework was created when observers looked over the kindergarten, standing in the entrance square of the park, while Screen was created when they looked over trees planted outer zone of the park, standing at the entrance or in the

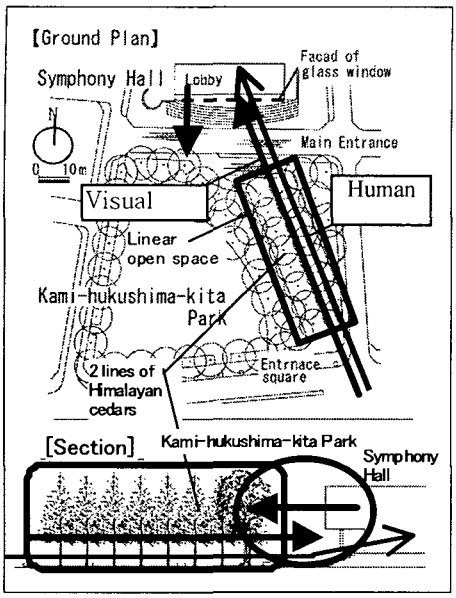

Fig. 3. One of typical types of Mutually-related Group / the back or side of facilities was designed to face the park

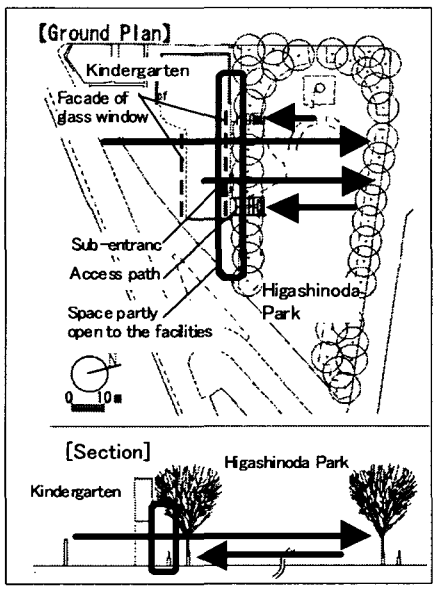

Fig. 4. One of typical type of Mutually-related Group / the entrance of facilities was designed to face the park

play room in the kindergarten. As for the human activities in the park, playing was seen over the park, and traveling to the kindergarten was also found. In the facilities, playing and resting while overlooking trees in the park were seen. In the design methods leading to active relation between them, the access path to the facilities was placed beside the edge of the kindergarten, and space partly open to the kindergarten was created in the park. In the facilities, the sub-entrance was made for easy access to the park, and glass windows were placed at the facade to enjoy green landscape in the park.

In summary, when the entrance of facilities was designed to face the park, linear-typed or alcove-shaped square was created in the park, and the facilities were arranged with parks in a spatially integrated way. Linear-typed square created Vista and Over Head Plain by planting trees in two lines along the square, which attracted visitors to parks. In the alcove-shaped square, trees were planted so that the square was surrounded by trees, which produced width and depth in space. This square also stimulated visitors to facilities to wait there for someone or the opening of the concert or take a rest. In the facilities, the trees planted in the alcove-shaped square created Screen, which improved living environment at the entrance and in the lobby, as well as image of the building.

When the back or side of the facilities faced the park, the access path to the planting zone in parks was made in the facilities, and the landmark was placed on the extension of the path, in order to attract their visitors to the park. Trees planted along the boundary area between the park and facilities served as Screen in the facilities, helping improve their living environments. In the park, they served as Frame, and became part of green environment.

2) Park Group

Park Group has two kinds of successful design methods in bringing better relations of parks to their bordering facilities, like those described in (i) mu-

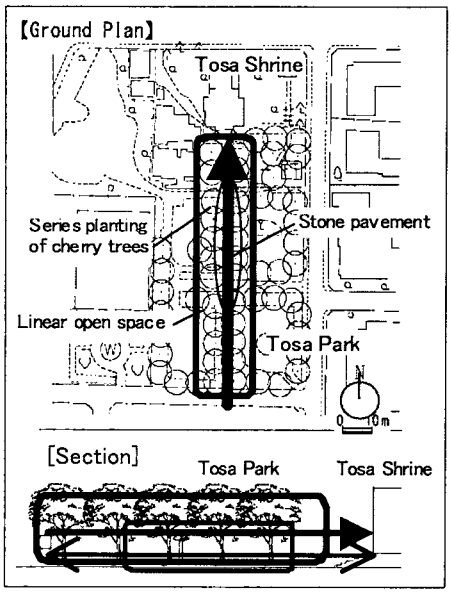

Fig. 5. A typical example for parks and public facilities of Park Group

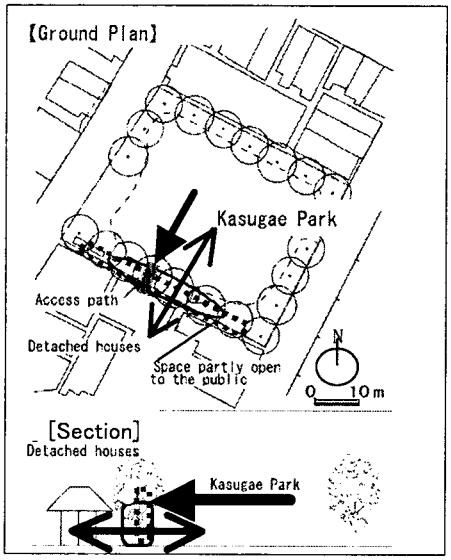

Fig. 6. A typical example for parks and private facilities of Park Group

tually-related group. It was also found that the design methods for public facilities were different from those for private facilities. As a good example for relation between parks and public facilities with their entrance facing the park, the relations between Tosabori Park and Tosabori Shrine were described below (Fig. 5). Vista was seen, and traveling and business activities were seen as human activities. Vista was created when observers looked over the building in the shrine along the vista axis, standing at the main entrance of the park. Traveling and business activities took place along the vista axis from the entrance to the shrine. When the design technique for creating relation of the parks to the shrine was examined in terms of the visual access and human activities, stone pavement was placed and 2 lines of cherry trees were planted along the vista axis, which created the linear open space.

As a typical example for parks and private facilities, the relation between Kasugae Park and residential houses was provided as follows(Fig. 6). Foreground was found as the visual access type, and traveling and gardening activities were found as the human activities. In the park, Foreground was created when observers looked over the residential houses, standing in the playground of the park. Gardening activities took placed in the outer zone of the park, and traveling from the park to residential houses occurred. These observations found that the design methods in terms of the visual access and human activities were placing access path from residential houses to the park through planting zone, and creating space partly open to the residents.

As a good example for relation of parks to facilities only in terms of human activities, the relation between Nakatsu Chuo Park and the Sports Center was described below (Fig. 7). Among the human activities, traveling, exercise, and resting were seen. Most traveling occurred from the sports center to the park. In the ground and entrance square of the park, exercise and resting took place. According to the observations, the design methods introduced were removing any objects from the entrance of the park and boundary area between them, placing only interlocking pavement there, and creating space partly open to the residential area.

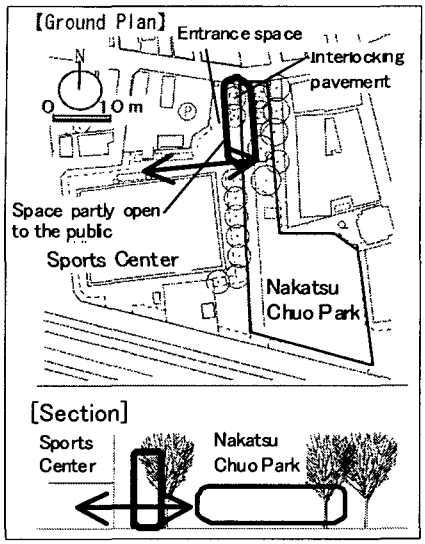

Fig. 7. A typical example for relation of parks to facilities only in terms of human activities of Park Group

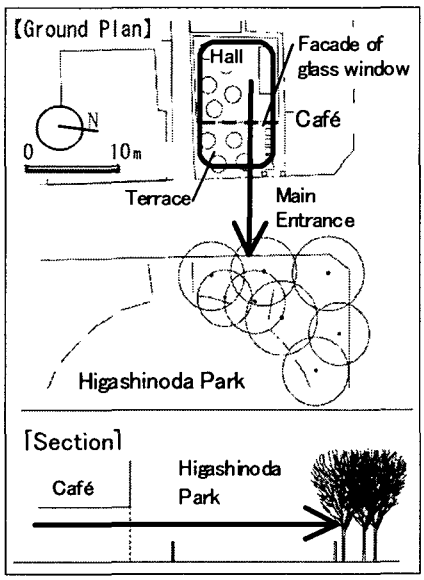

Fig. 8 Only one type of Facilities Group

These results showed that when public facilities such as the shrine faced the park, the linear space as observed in the mutually-related group was created. In addition, business activities were seen along the vista axis when certain events took place in the parks. On the other hand, when private facilities such as residential houses faced the park, the facilities were integrated into parks by making Framework of high trees. Placing access path to the residential houses stimulated residents to enter the park and do gardening activities. When the side of the facilities faced the park, utilization of the boundary area differed according to the publicity of facilities, ranging from space fully open to the facilities to space open to them with limitations. The parks were mainly related to facilities in terms of human activities.

3) Facilities Group

When facilities related to the park were observed, their relation was similar to that seen in a type of Mutually-Related Group. The relation between Higashi Noda Park and the Cafe was exemplified below(Fig. 8). Screen was observed, and eating and drinking, and resting were seen. Screen was created when observers looked over the outer green area of the park, standing at the hall and terrace of the cafe. Eating and drinking, and resting occurred there while enjoying the green of the park. These observations indicated that the full-scale glass window was placed at the facade so that the green of the park was integrated into the cafe. According to the results, as the design technique for this group, some ideas were introduced for design of the wall and interior space so that the green of the park was integrated into facilities to enjoy Screen scene. Screen served to improve the living environment of the facilities.

Ⅳ. CONCLUSION

According to the analytical results, the design methods for improving relations between parks and bordering facilities were creation of square open to the facilities in boundary area to enhance their relations, as well as placement of access path to facilities. In addition, planting design was devised so that Vista, Screen, and Framework were created. These results

found that valuable greenery and squares in parks, located in the urban area, were made full use of in various kinds of ways. In the future, it is required to establish a system for creating a design technique based on partnership between the park department and owners of facilities in order to help revitalize the urban area.

REFERENCES

1. Mizue Aoyagi and Shigeru Hori(1996) : A study on Location and Design of Open-Cafe in Tokyo. Papers of City Planning 31, 223-228.
2. Junich Tsuchida and Makoto Yokohari(2001): Effects of Street' Attributes on the Physical Appearance of Street Restaurants and Cafes with Open-Facade. Papers of City Planning 36, 751-756.